CAMBRIDGE
International Examinations

Cambridge
O Level

SYLLABUS

Cambridge O Level
CDT: Design and Communication
7048

For examination in November 2017, 2018 and 2019

Cambridge Secondary 2

Version 1

Changes to syllabus for 2017, 2018 and 2019

This syllabus has been updated. Significant changes to the syllabus are indicated by black vertical lines either side of the text.

You are strongly advised to read the whole syllabus before planning your teaching programme. In addition, you are strongly advised to refer to the published specimen assessment materials for 2017 on our website at www.cie.org.uk

Changes to Paper 1: The weighting of the paper has been reduced by 10%. The duration (2 hours 30 minutes) now includes time for reading. Paper 1 will now be printed at A3 paper size. The structure of Paper 1 has changed so that:

- Sections 1 and 2 have been renamed Sections A and B, and content from across the syllabus could appear in either section.
- Section A now contains **one compulsory question** with some parts in short-answer question style rather than technical drawing.
- Section B contains a reduced choice of questions. Candidates answer **two** questions chosen from three (not four) questions.

Changes to Paper 2: The weighting of the paper has been increased by 10%. The component name has changed to 'Paper 2: Design Project'. The description of the component on page 7 has been revised to clarify that the project involves designing and making a product as well as a design portfolio. The assessment criteria have been revised (see page 16).

Syllabus changes

Page 6 A 'Syllabus content at a glance' section has been added.

Pages 7–8 The assessment component weightings have changed to be Paper 1: 60%; Paper 2: 40%. A list of equipment and materials for Papers 1 and 2 has been added.

Pages 9–10 The wording of the syllabus aims has been simplified with no substantive changes. Assessment objective and weighting information has been added to the syllabus to clarify how skills are assessed in the papers. There are no changes to the skills, knowledge and understanding being assessed.

Pages 11–14 The syllabus content has been updated. The revised syllabus content is shown in the table on pages 11–13. Wording in the syllabus content has been: reordered and in some cases removed for clarity; added to in order to make what is currently assessed explicit; adjusted to reflect the change in weighting of the components. The 'Notes for guidance' on the syllabus content have been updated to clarify the experience and knowledge candidates should gain through study of the syllabus.

Pages 15–19 The assessment criteria for Paper 2 have been revised to clarify levels of attainment, to make the mark ranges explicit and to explicitly include development and planning skills. The wording on page 15 has been revised to refer to the questions in Paper 2 as 'design situations' rather than 'problems' or 'themes' and to clarify that both a product and a design portfolio are required. Guidance notes for Paper 2 have been produced to exemplify and support use of the revised asessment criteria.

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1. Introduction

1.1 Why choose Cambridge?

Cambridge International Examinations is part of the University of Cambridge. We prepare school students for life, helping them develop an informed curiosity and a lasting passion for learning. Our international qualifications are recognised by the world's best universities and employers, giving students a wide range of options in their education and career. As a not-for-profit organisation, we devote our resources to delivering high-quality educational programmes that can unlock learners' potential.

Our programmes set the global standard for international education. They are created by subject experts, are rooted in academic rigour, and provide a strong platform for progression. Over 10 000 schools in 160 countries work with us to prepare nearly a million learners for their future with an international education from Cambridge.

Cambridge learners

Cambridge programmes and qualifications develop not only subject knowledge but also skills. We encourage Cambridge learners to be:

- **confident** in working with information and ideas – their own and those of others
- **responsible** for themselves, responsive to and respectful of others
- **reflective** as learners, developing their ability to learn
- **innovative** and equipped for new and future challenges
- **engaged** intellectually and socially, ready to make a difference.

Recognition

Cambridge O Level is internationally recognised by schools, universities and employers as equivalent in demand to Cambridge IGCSE® (International General Certificate of Secondary Education). There are over 700 000 entries a year in nearly 70 countries. Learn more at **www.cie.org.uk/recognition**

Support for teachers

A wide range of materials and resources is available to support teachers and learners in Cambridge schools. Resources suit a variety of teaching methods in different international contexts. Through subject discussion forums and training, teachers can access the expert advice they need for teaching our qualifications. More details can be found in Section 2 of this syllabus and at **www.cie.org.uk/teachers**

Support for exams officers

Exams officers can trust in reliable, efficient administration of exams entries and excellent personal support from our customer services. Learn more at **www.cie.org.uk/examsofficers**

Our systems for managing the provision of international qualifications and education programmes for learners aged 5 to 19 are certified as meeting the internationally recognised standard for quality management, ISO 9001:2008. Learn more at **www.cie.org.uk/ISO9001**

1.2 Why choose Cambridge O Level?

Cambridge O Levels have been designed for an international audience and are sensitive to the needs of different countries. These qualifications are designed for learners whose first language may not be English and this is acknowledged throughout the examination process. The Cambridge O Level syllabus also allows teaching to be placed in a localised context, making it relevant in varying regions.

Our aim is to balance knowledge, understanding and skills in our programmes and qualifications to enable students to become effective learners and to provide a solid foundation for their continuing educational journey.

Through our professional development courses and our support materials for Cambridge O Levels, we provide the tools to enable teachers to prepare learners to the best of their ability and work with us in the pursuit of excellence in education.

Cambridge O Levels are considered to be an excellent preparation for Cambridge International AS and A Levels, the Cambridge AICE (Advanced International Certificate of Education) Group Award, Cambridge Pre-U, and other education programmes, such as the US Advanced Placement program and the International Baccalaureate Diploma programme. Learn more about Cambridge O Levels at **www.cie.org.uk/cambridgesecondary2**

Guided learning hours

Cambridge O Level syllabuses are designed on the assumption that learners have about 130 guided learning hours per subject over the duration of the course, but this is for guidance only. The number of hours required to gain the qualification may vary according to local curricular practice and the learners' prior experience of the subject.

1.3 Why choose Cambridge O Level CDT: Design and Communication?

Cambridge O Levels are established qualifications that keep pace with educational developments and trends. The Cambridge O Level curriculum places emphasis on broad and balanced study across a wide range of subject areas. The curriculum is structured so that candidates attain both practical skills and theoretical knowledge.

This syllabus aims to develop the skills of problem-solving, designing and graphic communication. Candidates have the opportunity to develop their own ideas as they produce a design portfolio in response to a design situation. This may involve work in two or three dimensions, so candidates learn how to use a range of views and perspectives for use in everyday design areas. Particular examples might include products, packaging, symbols, logos, signs, etc.

Cambridge O Level CDT (Craft, Design and Technology): Design and Communication provides an ideal basis for further study, and prepares candidates for their future within a rapidly changing technological society.

Prior learning

Candidates beginning this course are not expected to have studied CDT: Design and Communication previously.

Progression

Cambridge O Levels are general qualifications that enable candidates to progress either directly to employment, or to proceed to further qualifications.

Candidates who are awarded grades C to A* in Cambridge O Level CDT: Design and Communication are well prepared to follow courses leading to Cambridge International AS and A Level Design and Technology (Graphics option), or the equivalent.

1.4 How can I find out more?

If you are already a Cambridge school

You can make entries for this qualification through your usual channels. If you have any questions, please contact us at **info@cie.org.uk**

If you are not yet a Cambridge school

Learn about the benefits of becoming a Cambridge school at **www.cie.org.uk/startcambridge**. Email us at **info@cie.org.uk** to find out how your organisation can register to become a Cambridge school.

2. Teacher support

2.1 Support materials

We send Cambridge syllabuses, past question papers and examiner reports to cover the last examination series to all Cambridge schools.

You can also go to our public website at **www.cie.org.uk/olevel** to download current and future syllabuses together with specimen papers or past question papers and examiner reports from one series.

For teachers at registered Cambridge schools a range of additional support materials for specific syllabuses is available online from Teacher Support, our secure online support for Cambridge teachers. Go to **http://teachers.cie.org.uk** (username and password required).

2.2 Endorsed resources

We work with publishers providing a range of resources for our syllabuses including print and digital materials. Resources endorsed by Cambridge go through a detailed quality assurance process to ensure they provide a high level of support for teachers and learners.

We have resource lists which can be filtered to show all resources, or just those which are endorsed by Cambridge. The resource lists include further suggestions for resources to support teaching.

2.3 Training

We offer a range of support activities for teachers to ensure they have the relevant knowledge and skills to deliver our qualifications. See **www.cie.org.uk/events** for further information.

3. Syllabus content at a glance

This syllabus covers the following topics:

- Use of drafting aids
- Sketching
- Geometrical figures
- The circle
- The ellipse
- Isometric views
- Planometric views
- Oblique views
- Perspective
- Orthographic projections
- Sectional views
- Auxiliary views
- Exploded views
- Developments
- Control
- Loci
- Presentation
- Convey information
- Analysis of products
- Designing
- Planning and making
- Materials and components
- Evaluating.

4. Assessment at a glance

For Cambridge O Level CDT (Craft, Design and Technology): Design and Communication candidates take two compulsory components.

Components	Weighting
Paper 1 Written examination **2 hours 30 minutes** Written examination of 2 hours 30 minutes **Section A – 30 marks** Candidates answer **one** compulsory question (30 marks) **Section B – 50 marks** Candidates answer **two** questions from a choice of three (25 marks each) Questions in Section A and Section B are drawn from across the syllabus content. Maximum 80 marks available. Externally assessed.	60%
Paper 2 Design Project **Two terms** Candidates carry out a design-and-make activity which involves producing a design portfolio and a product. This will involve exploring one design situation selected from a choice of 10 set by Cambridge. Maximum 100 marks available. Internally assessed and externally moderated.	40%

Availability

This syllabus is examined in the November examination series.

This syllabus is not available to private candidates.

Detailed timetables are available from **www.cie.org.uk/examsofficers**

Cambridge O Levels are available to Centres in Administrative Zones 3, 4 and 5. Centres in Administrative Zones 1, 2 or 6 wishing to enter candidates for Cambridge O Level examinations should contact Cambridge Customer Services.

Combining this with other syllabuses

Candidates can combine this syllabus in an examination session with any other Cambridge syllabus, except:

- 6043 Cambridge O Level Design and Technology
- 0445 Cambridge IGCSE Design and Technology
- syllabuses with the same title at the same level

Please note that Cambridge O Level, Cambridge IGCSE and Cambridge International Level 1/Level 2 Certificate syllabuses are at the same level.

Equipment and materials

For Paper 1 and Paper 2, all candidates should have access to the following standard drawing equipment: A3 drawing board and tee square (or parallel drafting device), 30°/60° and 45° set squares, 180° protractor, pencil, compass, 300 mm rule, drafting pencils, coloured pencils and an eraser.

In addition for Paper 2 only, candidates may use templates for ellipitcal shapes and templates for flow chart symbols. Candidates should also have access to:

- a range of sheet materials such as paper, card, corrugated card and corrugated plastic, Styrofoam and foamboard, thin plastic sheet and self-adhesive vinyl
- a range of hand tools and equipment (such as craft knives and cutting mats) required to safely and correctly produce products
- a digital camera to record the making process and the final product.

Candidates are not themselves required to use a digital camera. However, Centres should enable candidates to provide a visual record of the making processes and high quality images of the final product.

5. Syllabus aims and assessment objectives

5.1 Syllabus aims

The Cambridge O Level CDT: Design and Communication syllabus aims to:

- foster awareness, understanding and expertise in creative thinking which can be expressed and developed through investigation and research, planning, designing, realising and evaluating
- encourage the acquisition of a body of knowledge for solving practical/technological problems through processes of analysis, synthesis and realisation
- stimulate the development of a range of appropriate graphical techniques and processes, including model-making
- stimulate the development of a range of communication skills which are central to design, realisation and evaluation
- encourage candidates to relate their practical work to their personal interests and abilities
- promote the development of curiosity, enquiry, initiative, ingenuity, resourcefulness and discrimination
- offer a broad and balanced perspective on a range of technological applications, in order to provide an understanding of their capabilities and limitations
- encourage technological awareness and foster attitudes of cooperation and social responsibility
- stimulate the making of value judgements of an aesthetic, technical and economic nature.

5.2 Assessment objectives

AO1 Knowledge with understanding

- Recall, select and communicate knowledge and demonstrate understanding in design and communication

AO2 Application

- Apply knowledge, understanding and skills in a variety of contexts and in designing and making products

AO3 Analysis and evaluation

- Analyse and evaluate products, including their design and production

5.3 Relationship between assessment objectives and components

The weightings allocated to each of the assessment objectives are summarised below:

Assessment objective	Paper 1	Paper 2	Weighting of AO in overall qualification
AO1 Knowledge with understanding • Recall, select and communicate knowledge and demonstrate understanding in design and communication	58%	12–13%	**40%**
AO2 Application • Apply knowledge, understanding and skills in a variety of contexts and in designing and making products	25%	62–63%	**40%**
AO3 Analysis and evaluation • Analyse and evaluate products, including their design and production	17%	25%	**20%**
Weighting of paper in overall qualification	60%	40%	**100%**

6. Syllabus content

	Candidates should be able to:
Use of drafting aids	• use drawing aids to develop good presentation techniques (e.g. Radius aids, flexi curves, technical pens, templates, lettering and other stencils). During their course candidates should have experience in using such drawing aids. (The use of these aids is allowed in the Paper 2 project but not in the Paper 1 examination.)
Sketching	• understand and produce free-hand sketches which communicate ideas, thoughts and information from written, visual or tabular data
Geometrical figures	• use appropriate geometrical constructions, including division of lines and angles, to draw regular plane linear shapes (triangles, quadrilaterals, pentagons, hexagons and octagons)
The circle	• use appropriate geometrical constructions in order to draw circles, tangents and tangential arcs
The ellipse	• construct ellipses by an accurate method (trammels will be permitted)
Isometric views	• produce isometric views including circles and arcs (isometric scales will not be required)
Planometric views	• produce planometric views including circles and arcs (no scaling will be required)
Oblique views	• produce oblique views including circles and arcs
Perspective	• produce estimated perspective drawings, using one or two vanishing points
Orthographic projections	• identify and use both first and third angle orthographic projection (dimensions and drawings of details and simple assemblies of parts from information given in orthographic or pictorial form will be required, including parts lists)
Sectional views	• select the most suitable section, draw whole or part sections taken on the principal vertical and horizontal planes
Auxiliary views	• draw auxiliary views to determine the true shape of cut surfaces and lengths of line
Exploded views	• produce exploded views of objects in line along one axis

	Candidates should be able to:
Developments	• produce developments of three-dimensional (3D) shapes based on right prisms, cylinders, pyramids and cones (complete and truncated)
Control	• understand that in order for a mechanical system to work it needs an INPUT, CONTROL and OUTPUT • understand simple mechanisms (e.g. linkages, cams and pop-up systems) and how they are used in products such as pop-up books and interactive displays
Loci	• construct the paths of points of simple plane mechanisms (linkages will have a maximum of four elements)
Presentation	• demonstrate use of shading, colouring and other techniques for emphasis (e.g. the thick and thin line technique) • apply an understanding of light, shade and shadow to give increased visual impact to pictorial drawing • communicate the material and surface finish of a given product by rendering drawings to look like wood, metal and plastic
Convey information	• draw and interpret histograms, pie charts, bar charts and graphs from data provided, to represent numerical data and distributions • draw flowcharts to describe processes, operations or assemblies
Analysis of products	• analyse the construction and operation of simple products made from paper, card, foamboard and thin plastic sheet
Designing	• identify and describe needs and opportunities for designing and making • gather, order and assess information relevant to the solution of practical/technological problems • analyse and produce design specifications for problems which the candidate, or another, has identified • generate and record ideas as potential solutions to problems using a range of techniques • select and develop a solution after consideration of time, cost, skill and resources

	Candidates should be able to:
Planning and making	• organise and plan in detail the production of the selected solution • use hand tools safely and correctly to produce products • understand the processes of vacuum forming to create blister packaging • have a knowledge of commercial printing methods such as lithography • understand the importance of personal safety and the safety of others when designing and making products
Materials and components	• have a knowledge of the following materials: paper, card, corrugated cardboard and corrugated plastic, Styrofoam and foamboard, thin plastic sheet and self-adhesive vinyl • recognise and use non-permanent joining methods including slots, arrow-tabs and flaps • recognise and use appropriately a range of modern adhesive methods to make temporary and permanent joints in products
Evaluating	• evaluate existing products/systems, the work of others and the candidate's own work • test the performance of the product/solution against the original specification • use different methods and sources to assess the effectiveness of a product (e.g. sampling, questionnaires, interviews) • suggest possible modifications and improvements to a product

6.1 Notes for guidance

Candidates should have experience of working to drawing standards and conventions as outlined in 'Drawing practice. Part 1: A guide for schools and colleges to BS 8888' (British Standard PP 8888–1, formerly PD 7308). This guide is available from the British Standards Institution (**http://shop.bsigroup.com**).

Candidates should also have experience of using a wide range of graphic symbols including those for electrical and electronic systems, data processing flowchart symbols and conventions that are currently in use. Note, however, that candidates will not be expected to learn symbols by rote for the assessment.

In the areas of product analysis and control, the most complex items that candidates would be expected to have experience of would be things such as:

- mechanical toys
- pop-up cards and books
- packaging
- architectural models
- interactive displays

Please note that knowledge about specific products will not be required in the examination, but candidates will be expected to show their ability to analyse products as part of their project work.

It is not intended that specific items in the areas listed below should be identified, but rather that examples based on them should be used as a way of teaching and applying the knowledge and skills developed as a result of studying the core content of the syllabus.

The following lists offer suggestions for areas of study, but they should not be considered definitive.

<table>
<tr><th>Signs</th><th>Symbols and logos</th></tr>
<tr><td>on control panels
directional
in shops
in streets</td><td>on clothes
on instruments and control panels
on maps
on products
on road signs
in vehicles
used by companies and organisations
on packaging
recycling symbols</td></tr>
<tr><th colspan="2">Packaging</th></tr>
<tr><td>Candidates should be familiar with packaging used in ways such as the following:
to protect items
to communicate information about a product
to advertise and help sell products
to prevent damage to the environment.</td><td>Examples of items to be packaged might include:
food
cosmetics
toys
small gift items
small electrical products.</td></tr>
<tr><th colspan="2">Disassembly of existing products</th></tr>
<tr><td colspan="2">Through disassembly, candidates should become familiar with the construction of existing products to support their own designing and making.</td></tr>
</table>

7. Project assessment

Candidates are required to spend two terms designing and realising possible solutions to one of the design situations described in Paper 2: Design Project.

The paper presents the candidate with a number of design situations. Candidates should have freedom to determine the length and nature of their involvement with each element required in this design/problem-solving process.

Teachers may direct as much time as they wish for candidates to investigate their chosen design situation. Candidates may seek help and guidance from their teacher as their investigation develops.

The candidate compiles a design portfolio and a product, exploring the design situation selected from the paper. The portfolio will contain all evidence of problem-solving and realisation. Candidates should use colour, where appropriate, to aid clarity and presentation. The maximum size of the portfolio is A3.

The design portfolio and product will be marked by the candidate's teacher, using the assessment criteria on pages 16–19.

The marks for all candidates must be recorded on the Coursework Assessment Summary Form. This form, and the instructions for completing it, may be downloaded from **www.cie.org.uk/samples**. The database will ask you for the syllabus code (i.e. 7048) and your Centre number, after which it will take you to the correct form. Follow the instructions when completing the form.

Details regarding internal and external moderation of coursework are in section 7.3.

7.1 Paper 2 Design Project assessment criteria

Project phase	Description	Mark	Maximum mark
(a) **Problem identification** – interpretation and clarification of the design situation, including a design brief	Demonstrates a good understanding of both the design need and user requirements, expressed in a design brief derived from the design situation.	4–5	**5**
	Demonstrates some understanding of the design context, expressed in a design brief derived from the design situation.	2–3	
	A statement of the task to be undertaken.	1	
	No creditable work presented.	0	
(b) **Research and analysis** – the collection and interpretation of information relevant to finding a solution to the design task	Relevant primary and secondary research data identified, collected, presented, then fully analysed with meaningful conclusions drawn that will influence the design activity.	8–10	**10**
	Relevant research data collected and analysed, and some design implications considered.	4–7	
	Some research data collected with superficial or no analysis.	1–3	
	No creditable work presented.	0	
(c) **Specification** – a list of points that define the key features of the design solution	Research has been used to justify the key points of a specification that completely defines the product.	4–5	**5**
	A number of specific points outline some key design considerations.	2–3	
	A few generic specification points presented.	1	
	No creditable work presented.	0	

Project phase	Description	Mark	Maximum mark
(d) **Proposals for a solution** – the synthesis and communication of a number of proposals for a solution	A comprehensive range of feasible, imaginative solutions presented using appropriate drawing and modelling techniques. Ongoing evaluation, further research and objective evaluation against the specification used to select an idea for development.	13–15	**15**
	A wide range of feasible solutions presented using a number of different drawing and modelling techniques. Ongoing and objective evaluation against the specification used to select an idea for development.	10–12	
	A range of feasible solutions presented using drawing and/or modelling techniques and with the specification used to select an idea for development.	7–9	
	A limited range of ideas based on a single concept and with superficial or subjective evaluation.	4–6	
	A single idea with little or no evaluation.	1–3	
	No creditable work presented.	0	
(e) **Development and planning** – making reasoned decisions and presenting these in a format that will allow a skilled person to make the product	A comprehensive testing and trialling strategy used to make reasoned decisions. A complete and accurate set of working drawings and a detailed plan showing the correct sequence for making the product.	13–15	**15**
	Testing and trialling resulting in reasoned decisions. A complete set of working drawings and a plan, with only minor errors, for making the product.	10–12	
	Some testing and trialling resulting in decisions. A working drawing and a plan that gives most details about how the product could be made.	7–9	
	A few decisions made to develop the chosen design idea. A working drawing and a plan that gives limited details about how the product could be made.	4–6	
	No decisions made to develop the design idea and few or no details given of sizes or the stages in making.	1–3	
	No creditable work presented.	0	

Project phase	Description	Mark	Maximum mark
(f) **Realisation** – the making of the final product	The product is complete and of an excellent standard. The product functions entirely as intended and is of marketable quality. A wide range of appropriate making skills is demonstrated.	29–32	**32**
	The product is complete and of a very good standard. The product functions as intended and there are only minor blemishes in construction or finish. A range of appropriate making skills is demonstrated.	25–28	
	The product is complete and of a good standard. The product functions as intended even though there are superficial errors in construction or finish. A range of appropriate making skills is demonstrated.	21–24	
	The product is complete and of a good standard. The product functions as intended but there are minor errors in construction or finish. A range of making skills is demonstrated.	17–20	
	The product is complete and of a satisfactory standard. The product partly functions as intended but there are errors in construction or finish. A limited range of making skills is demonstrated.	13–16	
	The product is complete or largely complete and of a satisfactory standard. The product partly functions as intended but there are significant errors in construction or finish. A limited and inappropriate range of making skills is demonstrated.	9–12	
	The product may be incomplete or of a low standard and the product does not function as intended. The making is based on a single making skill.	5–8	
	The product is incomplete and demonstrates a low standard of making. The making skills are inappropriate.	1–4	
	No creditable work presented.	0	

Project phase	Description	Mark	Maximum mark
(g) **Record of the making process** – using photographs and notes to record the making process	An excellent record of the making process with all stages shown in the correct order and with technical terms correctly used.	6–8	**8**
	A good record of the making process with most stages shown and some technical terms correctly used.	3–5	
	A limited record of the making process with some stages shown and few technical terms used.	1–2	
	No creditable work presented.	0	
(h) **Evaluation** – testing of the product and suggestions for improvement	The specification points and appropriate user testing are used to judge the product performance and justify appropriate improvements.	8–10	**10**
	The specification points are used to judge the performance of the product and suggestions for improvement are fully explained.	4–7	
	Superficial or subjective comments are made about the product and possible improvements.	1–3	
	No creditable work presented.	0	
Maximum marks available			**100**

7.2 Guidance notes on the Paper 2 assessment criteria

These guidance notes are designed to be read alongside the assessment criteria in Section 7.1 above. These notes further illustrate the assessment criteria which should be used when marking.

(a) Problem identification

At the highest level, a good understanding of the design need and user requirements is demonstrated and a clear design brief derived from the design situation.

At the lowest level, a simple design brief is presented.

(b) Research and analysis

At the highest level, research will involve identifying the key areas of research for a specific design task and then collecting and analysing data to draw conclusions that will influence the design activity.

At the lowest level, research will largely be collecting irrelevant images or information.

(c) Specification

At the highest level, the specification points are specific, based on the research and completely define the product.

At the lowest level, the specification points are general and could apply to almost anything.

(d) Proposals for a solution

At the highest level, candidates' design thinking will be adaptive and based on exploring ideas through ongoing evaluation and further research.

At the lowest level, candidates will focus on a single idea.

(e) Development and planning

At the highest level, testing and trialling strategy (including modelling) results in reasoned decisions, accurate orthographic and/or pictorial drawings and a clear plan to show the sequence of making.

At the lowest level, no decisions have been made; drawings give no measurements; no stages in making are identified.

(f) Realisation

At the highest level, the making is complete and of an excellent standard, a wide range of appropriate making skills have been used and the product functions entirely as intended and is of marketable quality.

At the lowest level, the making is incomplete and of a low standard, few or inappropriate making skills have been used and the product does not function as intended.

(g) Record of the making process

At the highest level, photographs and notes have been used to produce a complete record of the making process. The correct technical terms have been used to describe tools, materials and processes.

At the lowest level, photographs, drawings or notes have been used to describe some stages in the making process.

(h) Evaluation

At the highest level, the product has been fully tested against the specification and by gaining the opinions of potential users. As a result of this testing, detailed proposals for justified improvements have been given.

At the lowest level, a few subjective comments are made about the product and some alternative preferences expressed.

7.3 Moderation

Internal moderation

When more than one teacher in a Centre is giving internal assessments, the Centre must make arrangements for all candidates to be assessed to a common standard.

The internally moderated marks for all candidates must be recorded on the Coursework Assessment Summary Form. This form, and the instructions for completing it, may be downloaded from **www.cie.org.uk/samples**. The database will ask you for the syllabus code (i.e. 7048) and your Centre number, after which it will take you to the correct form. Follow the instructions when completing the form.

External moderation for Centres in Mauritius

Moderators appointed by the Mauritius Examinations Syndicate (MES) will carry out external moderation of internal assessment on behalf of Cambridge. The MES will then send a representative sample to Cambridge, once in-country moderation is complete.

External moderation for all other Centres

Cambridge will carry out external moderation of internal assessment.

Centres must submit candidates' internally assessed marks to Cambridge. The deadlines and methods for submitting internally assessed marks and coursework samples are in the *Cambridge Administrative Guide* available on our website.

External moderation – information for all Centres

Coursework Assessment Summary Forms, which may be downloaded from **www.cie.org.uk/samples**, must be enclosed with the coursework sample.

Further information about external moderation is in the *Cambridge Handbook* and the *Cambridge Administrative Guide*.

All records and supporting work should be retained until after the publication of the results.

7.4 Estimated entries

Cambridge sets Paper 2: Design Project, which is despatched to Centres in January for examinations taken in November. In order to receive the paper, Centres must make estimated entries for this syllabus. Estimated entries for Centres in Mauritius are handled by the Mauritius Examination Syndicate (MES). Instructions and timescales for all other Centres making estimated entries are in the *Cambridge Administrative Guide*.

7.5 Resubmission of coursework and carrying forward internally assessed marks

Information about resubmission of coursework and carrying forward internally assessed marks can be found in the *Cambridge Administrative Guide*.

8. Other information

Equality and inclusion

Cambridge International Examinations has taken great care in the preparation of this syllabus and assessment materials to avoid bias of any kind. To comply with the UK Equality Act (2010), Cambridge has designed this qualification with the aim of avoiding direct and indirect discrimination.

The standard assessment arrangements may present unnecessary barriers for candidates with disabilities or learning difficulties. Arrangements can be put in place for these candidates to enable them to access the assessments and receive recognition of their attainment. Access arrangements will not be agreed if they give candidates an unfair advantage over others or if they compromise the standards being assessed.

Candidates who are unable to access the assessment of any component may be eligible to receive an award based on the parts of the assessment they have taken.

Information on access arrangements is found in the *Cambridge Handbook* which can be downloaded from the website **www.cie.org.uk/examsofficers**

Language

This syllabus and the associated assessment materials are available in English only.

Grading and reporting

Cambridge O Level results are shown by one of the grades A*, A, B, C, D or E, indicating the standard achieved, A* being the highest and E the lowest. 'Ungraded' indicates that the candidate's performance fell short of the standard required for grade E. 'Ungraded' will be reported on the statement of results but not on the certificate. The letters Q (result pending), X (no results) and Y (to be issued) may also appear on the statement of results but not on the certificate.

Entry codes

To maintain the security of our examinations, we produce question papers for different areas of the world, known as 'administrative zones'. Where the component entry code has two digits, the first digit is the component number given in the syllabus. The second digit is the location code, specific to an administrative zone. Information about entry codes can be found in the *Cambridge Guide to Making Entries*.

Cambridge International Examinations
1 Hills Road, Cambridge, CB1 2EU, United Kingdom
Tel: +44 (0)1223 553554 Fax: +44 (0)1223 553558
Email: info@cie.org.uk www.cie.org.uk

7033032807